

Research Article

EFFECT OF DIETARY FIBERS ON WEIGHT LOSS AND BMI IN OBESE PATIENTS OF INDORE DISTRICT

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ABSTRACT

Obesity is a chronic condition defined by an excess amount body fat. Women with over 30% body fat and men with over 25% body fat are considered obese. The body mass index (BMI) equals a person's weight in kilograms (kg) divided by their height in meters (m) squared. Since BMI describes body weight relative to height, it is strongly correlated with total body fat content in adults. "Obesity" is defined as a BMI of 30 and above. Obesity has reached epidemic proportions in India in the 21st century, with morbid obesity affecting 5% of the country's population. India is following a trend of developing countries that are steadily becoming more obese. Unhealthy, processed food has become much more accessible in Indian food markets. Indians are genetically susceptible to weight accumulation especially around the waist. Dietary fiber (alternate names: roughage, bulk, diet-fiber) is a complex of substances of cell walls of plants which are not digested and not absorbed in a human's digestive tract. The study was a clinical trial with 40 obese patients of indore district, to see whether change in lifestyle particularly adapting to a diet rich in dietary fiber can lead to weight loss and decrease in BMI.

KEYWORDS: Obesity, BMI, Processed food, Dietary fibers.

INTRODUCTION

Obesity has reached epidemic proportions in India. There are about 12% males and 16% females affected by this deadly disease. According to a study most of the people in Punjab are affected by obesity¹. "Obesity" is defined as a BMI of 30 and above. Indians are genetically susceptible to weight accumulation especially around the waist. Dietary fiber (alternate names: roughage, bulk, diet-fiber) is a complex of

substances of cell walls of plants which are not digested and not absorbed in a human's digestive tract². Previous studies on effect of dietary fibers on obesity were not more than 8 weeks³⁻⁵. This study is a clinical Trial with 40 non-smoker Patients which had no renal and liver disorder for a period of 2 years, to see whether change in lifestyle particularly adapting to a diet rich

in dietary fiber can lead to weight loss and decrease in BMI.

MATERIALS AND METHOD

This study is a clinical Trial with 40 non-smoker Patients which had no renal and liver disorder. The patients were selected through questionnaire data collection method, by ways of various health care camps organized in the city, viz diabetic and hypertensive care camp organized by MA vashno group in mathlani garden, Indore; launch of dietary fiber rich flour SIFER, and through dieticians. The questionnaire was given to patients in order to inquire about their present status of disease and health and calculation of BMI. Weight was measured while the subjects were minimally clothed without shoes using digital scales and recorded to the nearest 0.1 kg. Height was measured in a standing position without shoes using a tape meter while the shoulders were in a normal state. Through the help clinical

dieticians diet charts were prepared for those patients after energy calculation. Each of these diet charts included fiber rich products in the range of 36-45 Gms of fiber per day. They were also divided into control and intervention groups. The intervention groups consisted of 27 females and 3 males having an average age of 39.5 and BMI of 38.3 kg/m². The control group consisted of 10 females having an average age of 39.3 and BMI of 38.7 kg/m². The first group was given 36 gm soluble fiber per day being included in various recipes under the directions of a dietician. The control group remained normal with no additional dietary supplements. All the groups were observed for a period of 2 years (feb-2010 to feb-2012). And weight and height measurements were taken every month and BMI was calculated. Before and after a period of 2 years average weight was calculated. The significance of differences in the means of intervention group and control group were found using t test.

DATA AND ITS ANALYSIS:

Table 1: Mean Weight (After Every 3 Months) in Intervention Group

MEAN WEIGHT (AFTER EVERY 3 MONTHS) IN INTERVENTION GROUP		
patient weight initial as on FEB-10 (BI)	w0	83.8
patient weight after 3 months as on MAY-10	w1	83.0
patient weight after 6 months as on AUG-10	w2	82.4
patient weight after 9 months as on NOV-10	w3	81.9
patient weight after 12 months as on FEB-11	w4	81.5
patient weight after 15 months as on MAY-11	w5	81.0
patient weight after 18 months as on AUG-11	w6	80.2
patient weight after 21 months as on NOV-11	w7	79.2
patient weight after 24 months as on FEB-12	w8	78.2

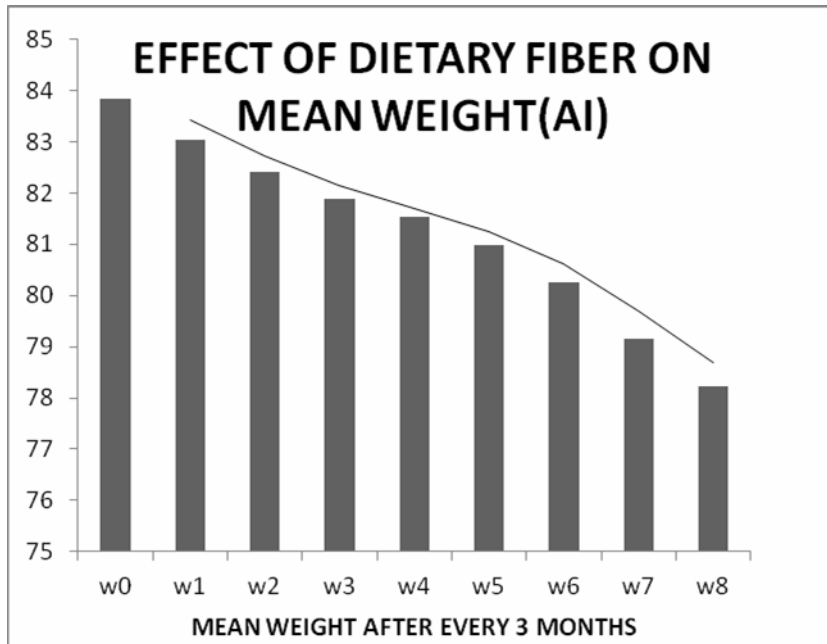


Figure 1: Effect of Dietary Fiber on Mean Weight (SI)

Table 2: Mean BMI in Intervention Group

MEAN BMI IN INTERVENTION GROUP		
<i>patient BMI initial as on FEB-10 (BI)</i>	B0	38.3
<i>patient BMI after 3 months as on MAY-10</i>	B1	38.0
<i>patient BMI after 6 months as on AUG-10</i>	B2	37.7
<i>patient BMI after 9 months as on NOV-10</i>	B3	37.4
<i>patient BMI after 12 months as on FEB-11</i>	B4	37.3
<i>patient BMI after 15 months as on MAY-11</i>	B5	37.0
<i>patient BMI after 18 months as on AUG-11</i>	B6	36.7
<i>patient BMI after 21 months as on NOV-11</i>	B7	36.2
<i>patient BMI after 24 months as on FEB-12</i>	B8	35.8

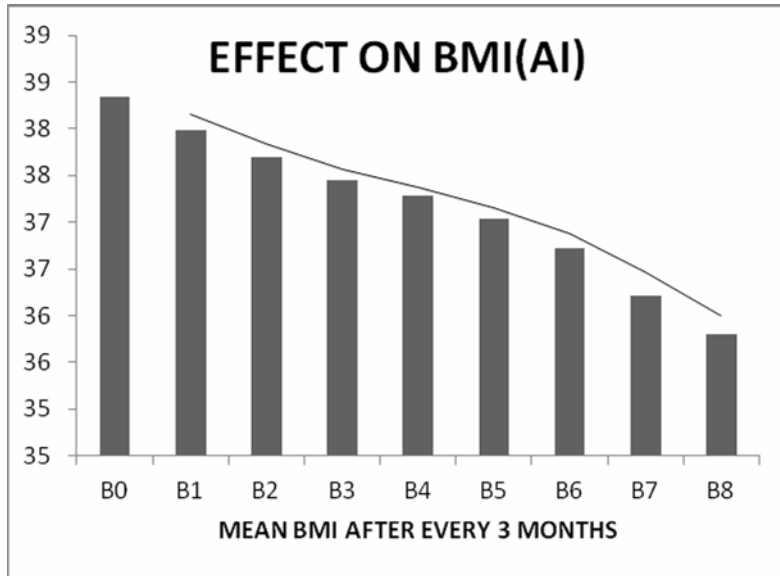


Figure 2 : Effect on BMI(AI)

Table 3: Mean Weight Control Group

MEAN WEIGHT CONTROL GROUP		
patient weight initial as on FEB-10 (B I)	w0	81.7
patient weight after 3 months as on MAY-10	w1	82.4
patient weight after 6 months as on AUG-10	w2	82.0
patient weight after 9 months as on NOV-10	w3	82.1
patient weight after 12 months as on FEB-11	w4	82.6
patient weight after 15 months as on MAY-11	w5	81.9
patient weight after 18 months as on AUG-11	w6	82.1
patient weight after 21 months as on NOV-11	w7	82.4
patient weight after 24 months as on FEB-12	w8	82.3

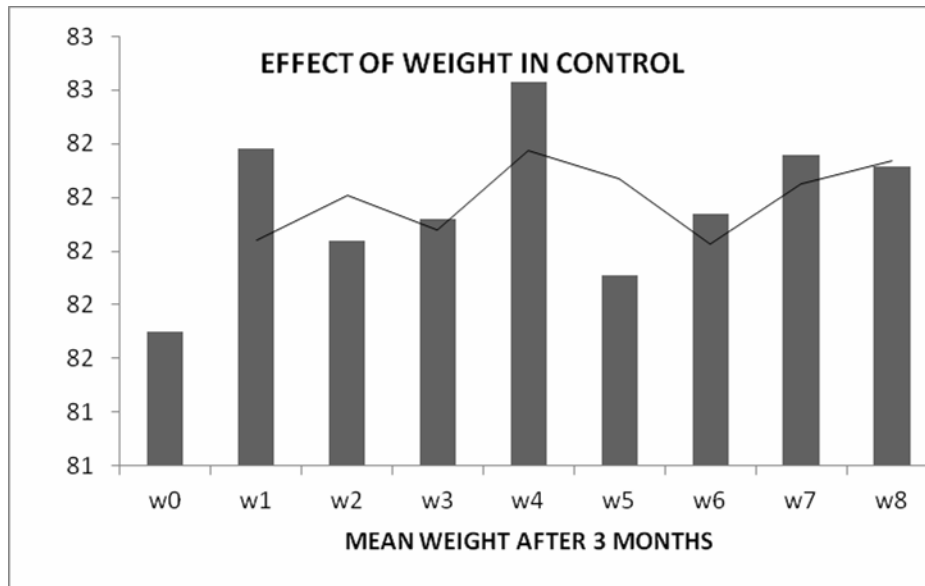


Figure 3: Effect of weight in control

Table 4: Mean BMI in Control

MEAN BMI IN CONTROL		
<i>patient BMI initial as on FEB-10 (BI)</i>	B0	38.7
<i>patient BMI after 3 months as on MAY-10</i>	B1	39.0
<i>patient BMI after 6 months as on AUG-10</i>	B2	38.9
<i>patient BMI after 9 months as on NOV-10</i>	B3	38.9
<i>patient BMI after 12 months as on FEB-11</i>	B4	39.2
<i>patient BMI after 15 months as on MAY-11</i>	B5	38.8
<i>patient BMI after 18 months as on AUG-11</i>	B6	38.9
<i>patient BMI after 21 months as on NOV-11</i>	B7	39.0
<i>patient BMI after 24 months as on FEB-12</i>	B8	39.0

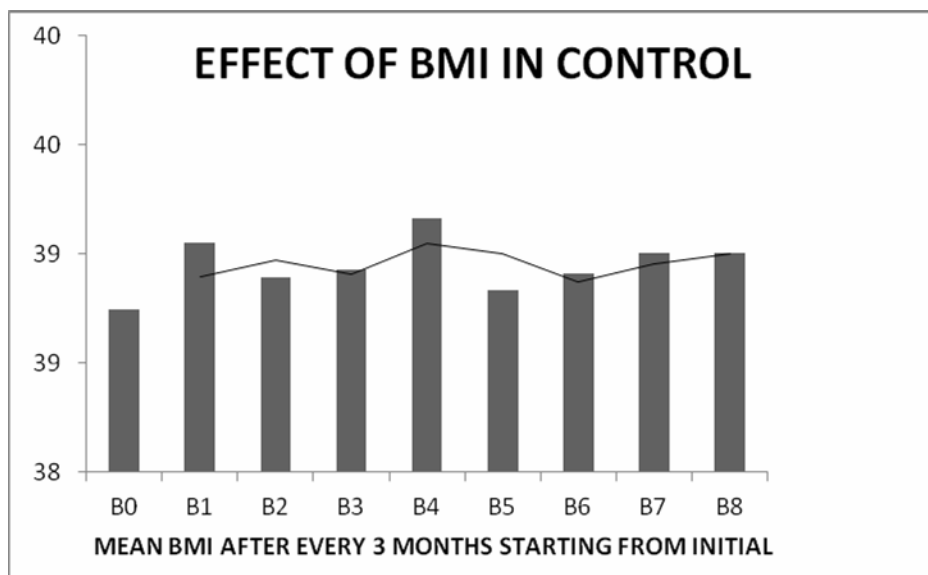


Figure 4: Effect of BMI in control

RESULT AND DISCUSSION

As we can see from the graph (figure 1) that there is a big difference between the mean values of weight in kg's in intervention group (group given additional dietary fiber). Therefore in order to confirm that the difference is significant a paired t test was applied. For the above values the calculated standard error was 0.45 and the calculated value of paired t test was found to be 23.7.

H_0 = the null hypothesis was there is no significant difference between the mean of after supplementation and before supplementation in the intervention group.

H_a =the alternate hypothesis was there is significant difference between the mean of after supplementation and before supplementation in the intervention group.

The table value for t at 5% level of significance and d.f=29 is 0.68 AND therefore the null hypothesis was rejected. So there exists a significant difference

between the mean values of weight in the intervention group. Similarly for control group the calculated value of SE= - 0.53 and value of t was found to be insignificant at 5% level of significance. Therefore Dietary fibers are highly effective in weight loss and lowering BMI values in obese patients.

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